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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/526,397	03/02/2005	Kozo Takatsu	266706US0PCT	3178
22850	7590	05/23/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
LANGEL, WAYNE A				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
05/23/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/526,397

**Applicant(s)**

TAKATSU ET AL.

**Examiner**

Wayne Langel

**Art Unit**

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13, 14, 16 and 19-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 16 and 19-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 14, 16 and 20-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gislason et al in view of Ino et al, for the reasons of record.

Claims 13, 14, 16 and 20-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ino et al in view of Gislason et al, for the reasons of record.

Claims 19 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gislason et al in view of Ino et al as applied to claim 13 above, and further in view of Shore et al. It would be further obvious from Shore et al to employ the system of Gislason et al in conjunction with a fuel cell.

Claims 19 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ino et al in view of Gislason et al as applied to claim 13 above, and further in view of Shore et al. It would be further obvious from Shore et al to employ the system of Ino et al in conjunction with a fuel cell.

Applicants' argument, that claim 13 requires that neither hydrogen nor oxygen be added while desulfurizing the hydrocarbon fuel, is not convincing. Gislason et al disclose in the paragraph bridging columns 13 and 14 that the agent which interferes with any possible chemical or physical reacting of the olefinic or aromatic compounds in the hydrocarbon stream "preferably" be hydrogen. Accordingly Gislason et al imply that

any such agent could be employed, hydrogen merely being "preferred". It would be obvious to employ an agent other than hydrogen as such interfering agent, such as an inert gas. It would be within the skill of one of ordinary skill in the art to determine other suitable interfering agents. No hydrogen would be added to the hydrocarbon fuel while desulfurizing under such scenario. Applicants' argument, that hydrogen is introduced during desulfurization in each of the examples of Gislason et al, is not convincing, since the teachings of Gislason et al are not limited to the examples. Applicants' argument, that the method of claim 13 can obtain a desulfurization level of 0.1 ppm or less of sulfur, is not convincing, since there is no evidence on record to support such contention, at least under the broad conditions embraced by claim 13. Applicants' argument, that one of ordinary skill in the art of desulfurization of hydrocarbons would not consider using the process of Gislason et al to desulfurize hydrocarbons for use in a process for the preparation of hydrogen because in such processes sulfur content must be lowered to a very small value (e.g., 0.1 ppm or less), is not convincing. Ino et al teach at col. 4, lines 36-40 that in cases where hydrocarbons to be used have a sulfur content of more than 0.5 wt. ppm, it is "preferable" that they be desulfurized beforehand. Accordingly one of ordinary skill in the art would recognize that the desulfurized hydrocarbons of Gislason et al could be used in the steam reforming process of Ino et al, although such desulfurized hydrocarbons (of Gislason et al ) would not be preferred..

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19, 30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 19, the phrase "wherein the desulfurizer is neither hydrogen nor oxygen is added..." is ungrammatical and therefore indefinite. Moreover, the phrase "neither hydrogen nor oxygen is added" is a method limitation which is improper in an apparatus claim. It is well-settled that method limitations are improper in apparatus claims since it is the apparatus structure which is being covered, and not the method of using such structure. In claims 30 and 31, it is indefinite as to when the cerium oxide is calcined (i.e., before or after the desulfurization step, or either).

Claims 30 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no "description support" in the original specification for calcining the cerium oxide "at a temperature of from 120 to 400 C". Applicants' argument, that support can be found in original claims 9 and 26, is not convincing, since original claim 9 recites a calcination temperature of "400C or lower", which would not provide support for a temperature of "from 120 to 400 C", and there does not appear to be an original claim 26.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Langel whose telephone number is 571-272-1353. The examiner can normally be reached on Monday through Friday, 8 am - 3:30 pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Langel/  
Primary Examiner, Art Unit 1793





**Application Number****Application/Control No.**

10/526,397

**Examiner**

Wayne Langel

**Applicant(s)/Patent under  
Reexamination**

TAKATSU ET AL.

**Art Unit**

1793